

- PCT International Search Report
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1. A polymer system for a thick polymer sheet comprising:
 - (a) Syndiotactic polypropylene or syndiotactic ethylene propylene copolymer in an amount greater than 20 percent to 100 percent by weight based on total polymer content; and
 - (b) Isotactic polypropylene or ethylene propylene block copolymer in an amount of 0 percent to less than 80 percent by weight based on total polymer content, wherein the polymer sheet has a thickness greater than or equal to approximately 100 mils.
 2. The polymer system of claim 1 further comprising an antioxidant.
 3. The polymer system of claim 2 comprising:
 - (a) Approximately 99.9wt% syndiotactic polypropylene or syndiotactic ethylene propylene copolymer; and
 - (b) Approximately 0.1 wt% antioxidant.
 4. The polymer system of claim 1 wherein the thickness is greater than 400 mils.
 5. The polymer system of claim 1 comprising a blend of:
 - (a) Greater than 20 percent to approximately 99 percent by total polymer weight of syndiotactic polypropylene or syndiotactic ethylene propylene copolymer; and
 - (b) Approximately 1 percent to less than 80 percent isotactic polypropylene or ethylene propylene block or random copolymer, percent by weight based on total polymer content.
 6. The polymer system of claim 5 comprising a blend of:
 - (a) Approximately 70-80 wt% syndiotactic polypropylene or syndiotactic ethylene propylene copolymer; and
 - (b) Approximately 20-30 wt% isotactic polypropylene or ethylene propylene block or random copolymer based on total polymer content.
 7. The polymer system of claim 5 comprising a blend of:
 - (a) Approximately 40-50 wt% syndiotactic polypropylene or syndiotactic ethylene propylene copolymer; and
 - (b) Approximately 50-60 wt% isotactic polypropylene or ethylene propylene block copolymer based on total polymer content.
 8. The polymer system of claim 1 further comprising fillers in an amount of 30-70 percent by weight of the total composition.

9. The polymer system of claim 8 wherein the fillers are selected from the group consisting of talc, calcium carbonate, magnesium hydroxide, barium sulfate, mica, calcium oxide, wollastonite, and clays.
10. The polymer system of claim 8 comprising:
- (a) Approximately 50 wt% syndiotactic polypropylene or syndiotactic ethylene propylene copolymer; and
 - (b) Approximately 50 wt% filler.
11. The polymer system of claim 8 comprising a blend of:
- (a) Syndiotactic polypropylene or syndiotactic ethylene propylene copolymer;
 - (b) Isotactic polypropylene or ethylene propylene block or random copolymer; and
 - (c) Approximately 50 wt% filler.
12. The polymer system of claim 1 wherein the polymer sheet is unfilled.
13. A thick highly-filled polymer sheet comprising:
- (a) Syndiotactic polypropylene in an amount greater than 20 percent to 100 percent by weight based on total polymer content; and
 - (b) Isotactic polypropylene or ethylene propylene block copolymer in an amount of 0 percent to less than 80 percent by weight based on total polymer content; wherein the polymer sheet has a thickness of approximately 50-1000 mils.
14. The polymer sheet of claim 13 wherein the thickness is greater than 400 mils.
15. The polymer sheet of claim 13 wherein the polymer sheet has been formed by extrusion using vacuum and thermoforming applications.
16. A thick highly-filled polymer sheet comprising:
- (a) Poly-1- butene in an amount greater than 20 percent to 100 percent by weight based on total polymer content; and
 - (b) Isotactic polypropylene or ethylene propylene block copolymer in an amount of 0 percent to less than 80 percent by weight based on total polymer content, wherein the polymer sheet has a thickness greater than or equal to 100 mils.
17. The polymer sheet of claim 16 wherein the thickness is greater than 400 mils.
18. The polymer sheet of claim 16 further comprising an antioxidant.
19. The polymer sheet of claim 16 further comprising fillers in the amount of 30-70 percent by weight.

20. The polymer sheet of claim 19 wherein the fillers are selected from the group consisting of talc, calcium carbonate, magnesium hydroxide, barium sulfate, mica, wollastonite, calcium oxide, and clays.